

Learning Theory Summary

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Elaboration Theory (Reigeluth)

The [Elaboration Theory](#) is based off the idea that concepts or principles should be taught in the order of most simple to more detailed and complex. The theory also suggests that a teacher should teach broad concepts first that can be expanded upon in more detail later on in the course. This theory is useful when teaching mathematics because it starts with explaining the concepts that need the most review from previous years and then expanding on those concepts. One way that this would be used in math is through diagnostic tests. The students would all complete a diagnostic test at the beginning of the year to determine how much information was absorbed and retained from the previous year. This would show the teacher where they need to start and what basic concepts need to be reviewed before more complex principles are taught where higher order thinking skills are needed.

ARCS Model of Motivational Design (Keller)

According to the [ARCS Model of Motivational Design](#), in order to encourage and sustain the students learning motivation there are four steps that need to be followed. The four different steps are:

1. Attention – In order to gain the students' attention, teachers need to incorporate a small amount of humor, use different methods of teaching and to ask difficult questions to encourage inquiry about the subject.
2. Relevance – In order to increase the learner's motivation, the content being taught needs to be relevant. This means using real life examples that the students would be aware of as well as allowing students to use the method of their choice to complete work.
3. Confidence – Increasing a learners' confidence will also increase their motivation to learn. If a student feels that the success they have is the direct result of the amount of effort they have put into their work, they will have more confidence and will be more inclined to put more effort into their learning.
4. Satisfaction – When the learner feels satisfied about their work through praise, positive feedback or achievement, there is a good chance that they will feel a greater sense of motivation next time.

ARCS Model of Motivational Design directly relates to teaching mathematics in my opinion. There are many students in classes today that feel discouraged when in a math class and if teachers implemented ARCS Model, it may lead to students have more motivation and confidence in these classes. Allowing students to solve real life problems

in groups first and then share their solutions with the class could increase their confidence and may also help to promote motivation as they are dealing with relevant events.

Social Learning Theory (Bandura)

Bandura's [Social Learning Theory](#) suggests people learn from one another through observation, imitation and modelling. This theory also suggests that a person's behaviour, their psychological process and the world all cause one another. With this being said, Bandura is suggesting that the environment of the classroom is based on the behaviour of the students.

The Social Learning Theory relates to teaching mathematics because the teacher needs to ensure a positive classroom environment is established at the beginning. If there are students in the class that have a negative behaviour than it may affect other students in the class. In order to create a positive classroom environment, the teacher needs to be passionate and enthusiastic about what they are teaching.

Cognitive Theory of Multimedia Learning (Mayer)

The [Cognitive Theory of Multimedia Learning](#) is based on the main concept that auditory and visual channels work more effectively together than they do alone. However, he also says that we can only process a finite amount of information on one channel at a time. Since we can only process a finite amount of information at a time, the learning is done through a process of filtering, selecting, organizing and integrating information.

This theory relates to teaching math because it shows us that we need to use a variety of different teaching concepts that will incorporate both visual and auditory learners. An example of this would be when doing some math examples and giving instructions in class. Students have a better chance at learning the concepts or understanding the instructions when they are presented visually as well some pictures or diagrams incorporated.